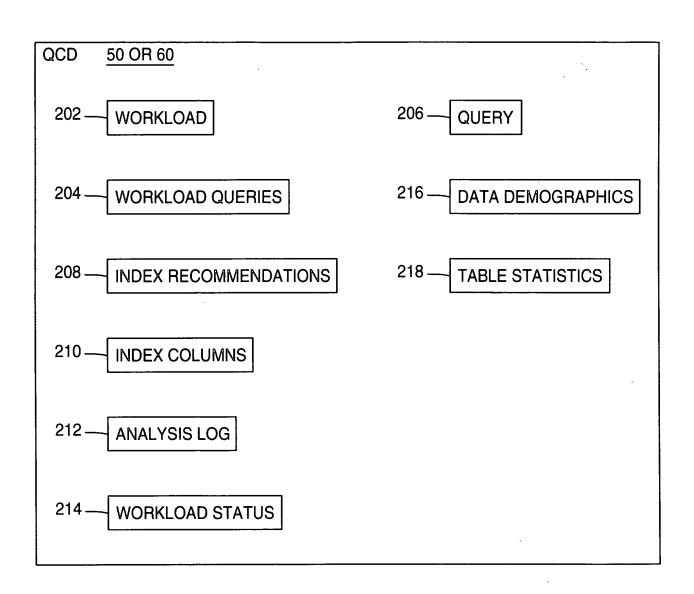
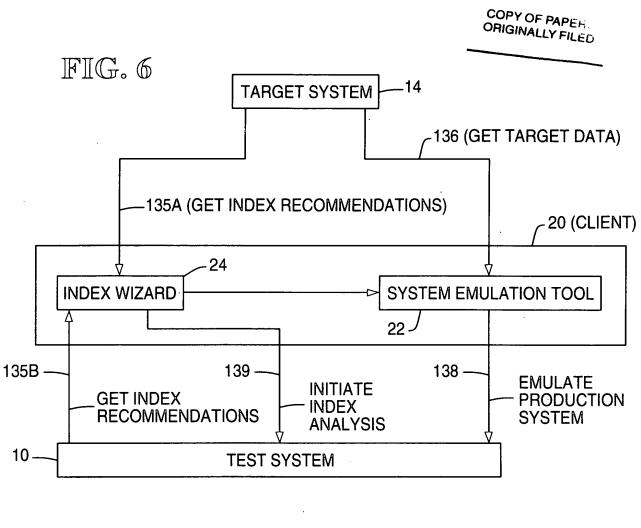
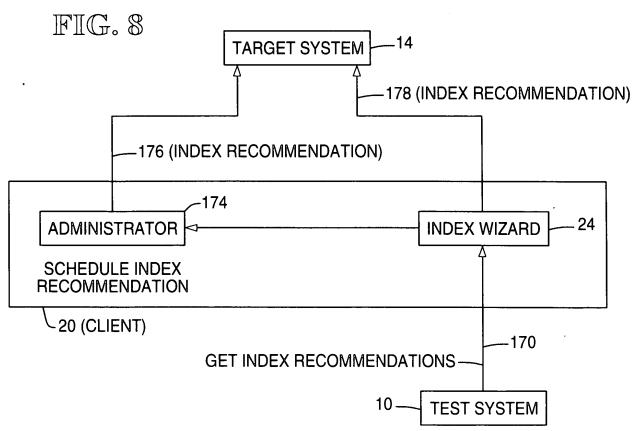
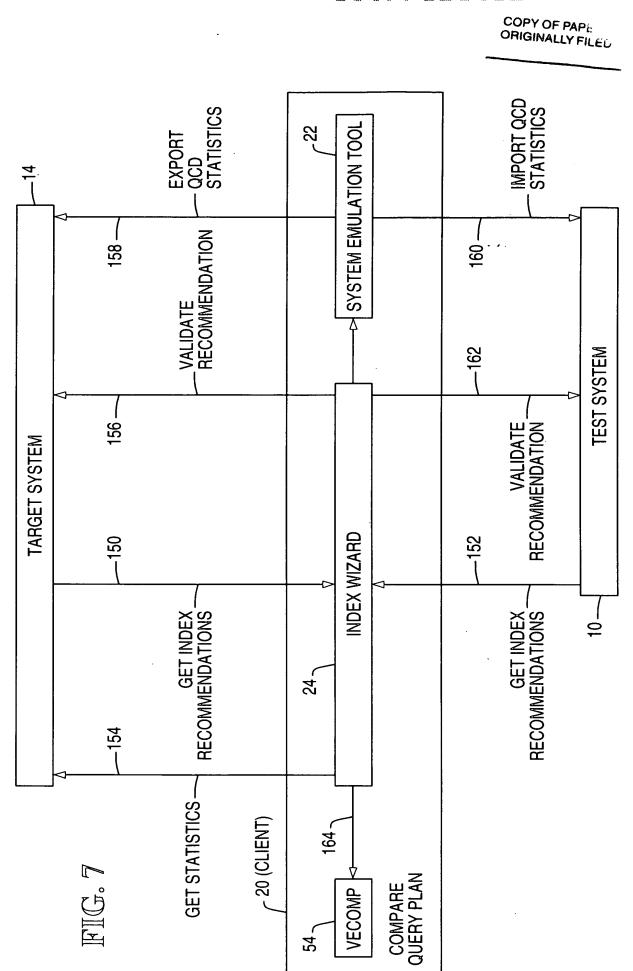


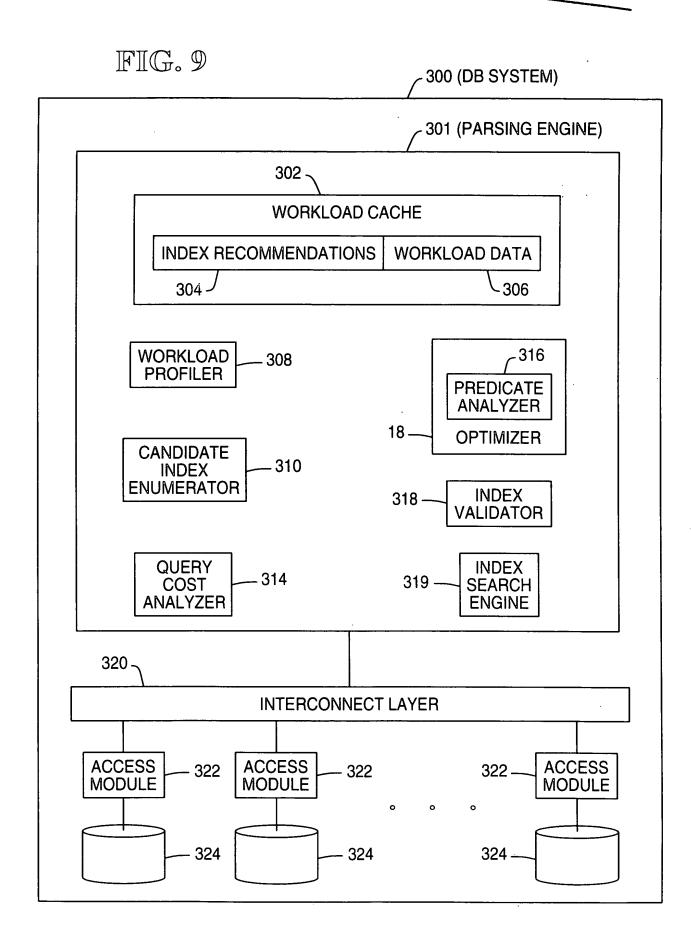
FIG. 5

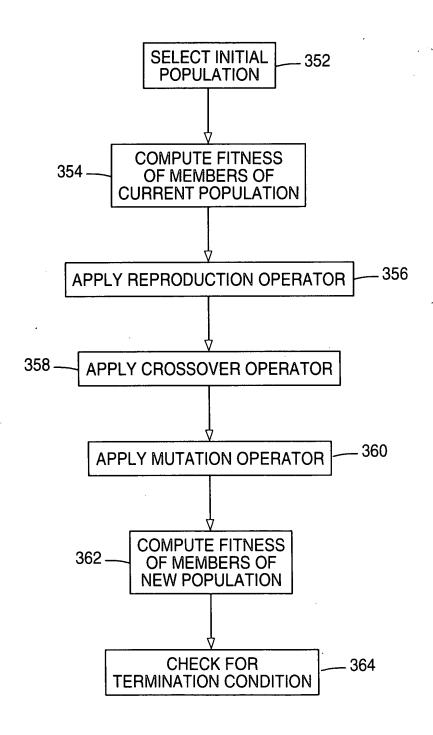




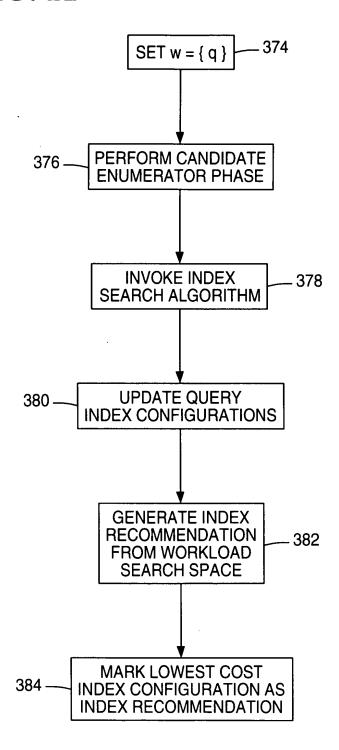




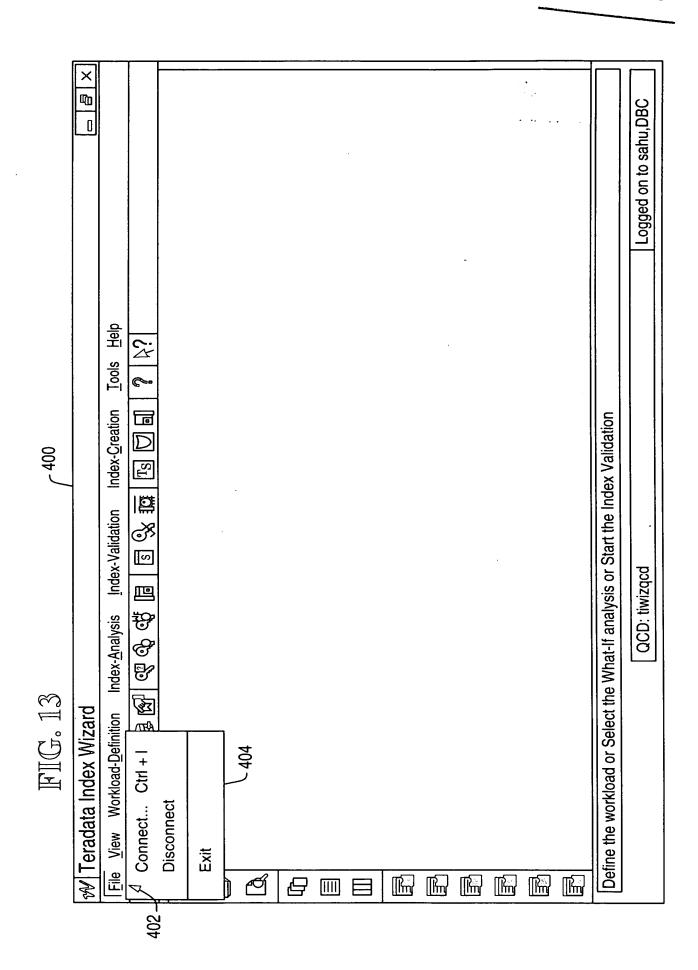






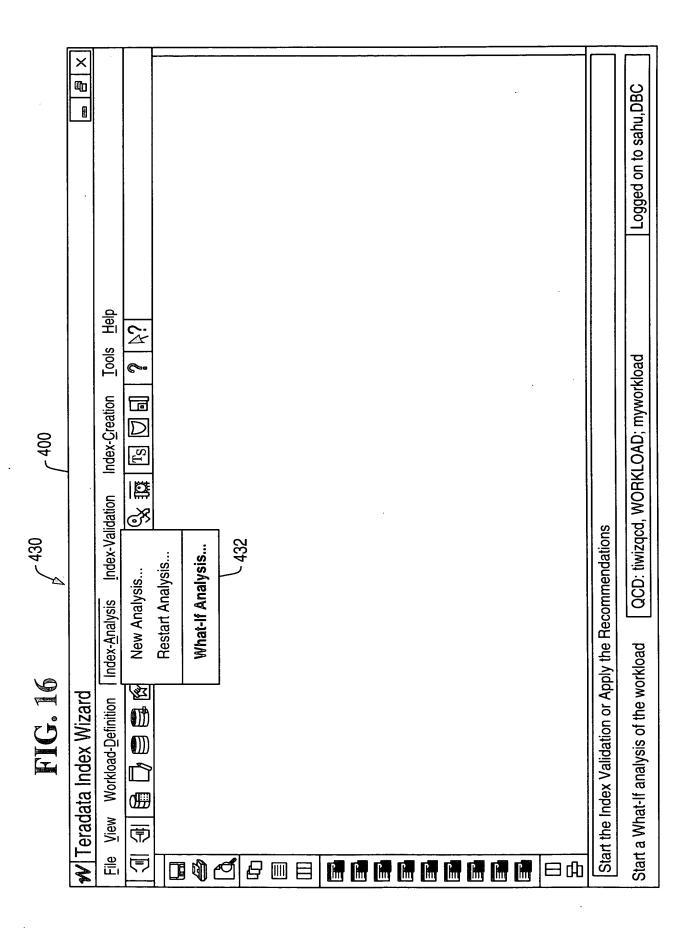


Q<sub>O</sub> Not Logged on 문 Tools Index-Creation G  $\square$  $\overline{\mathbf{I}}_{\mathbf{S}}$ Index-Validation Š S 呾 View Workload-Definition Index-Analysis <del>Gř</del> F W Teradata Index Wizard 05 ⑦ File Bur de lin lin. <u>Eur</u> 



	× 图 -					Logged on to sahu.DBC
f 400		Index-Analysis Index-Validation Index-Creation Tools Help	6 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Index Recommendations Report Existing Indexes Report Query Cost Analysis Report Update Cost Analysis Report Data Capacity Analysis Report Table Analysis Report Summary Report Table Scan Report  414	y the Recommendations	OCD: tiwizacd, WORKLOAD: myworkload
FIG. 14	M Teradata Index Wizard	File View Workload-Definition	Toolbar ▷, 🕅	Reports b thouse Summary Info Ex Control of the	Start the Index Validation or Apply the Recommendations	Displays the summary report

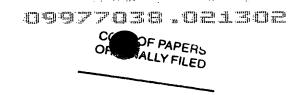
15	X B O											1 <del>12</del>	33	 			Not Logged on
FIG. 15																	Not I
		Tools Help	¿∆ ©														
7 400		Index-Creation	TS [C]														
		Index-Validation									,			,			
		Index-Analysis	: G				:										abase Query Log
£ 420	Teradata Index Wizard	View   Workload-Definition	DBQL Statements	Statement Text	QCD Statements	import Workload	Existing Workload	422								٠	Selects the statements from the Database Query Log
	W Terada	File View	京				<b>4</b>	8	目						 <b></b>	Æ	 Selects the st



	×							 		 			_			
																Not Logged on
		Tools <u>H</u> elp	<i>i</i> ₩ <i>i</i>												and the state of t	
.0 7 400		Index-Creation	Ts Co													
440		Index-Validation	<u>V</u> alidation													
		L L	\$ \$ \$ \$ \$ \$	( 0//	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \											
FIG. 17	W Teradata Index Wizard	Workload-Definition Index-Analysis														lexes
	Teradata	File View M		0		ď	B				În			<b>c</b>		Validates the indexes

× Not Logged on ~ 452 Tools Help Apply Recommendations... View Workload-Definition Index-Analysis Index-Validation... Index-Creation - 450 画 Saves and executes the recommendations W Teradata Index Wizard FIG. 18 Œ ⑦ Elle 同 

	×					1		<u> </u>		 	<del>-</del>	•				
					Preferences	Validation System	Index Analysis Inputs	√ 494								Not Logged on
460		Tools Help	Define Data Source	Teradata System Emulation Tool Teradata Visual Explain Teardata Statistics Wizard	<u>Options</u>	Workload CleanUp	769	1								N
400		Index-Validation Index-Creation														
	Teradata Index Wizard	View Workload-Definition Index-Analysis														
	*	File			<u></u>		) [[[[								Ф	



	ICON	DESCRIPTION
800		TO LOGON TO THE TERADATA RDBMS SERVER
801—		TO LOG OFF FROM THE TERADATA RDBMS SERVER
802 —		TO SELECT THE STATEMENTS FROM THE DBQL
803 —		TO ENTER THE SQL STATEMENTS OR SELECT THEM FROM MORE THAN ONE FILE
804 —		TO SELECT THE SQL STATEMENTS FROM THE QCD
805 —		TO IMPORT A WORKLOAD FROM A PRODUCTION SYSTEM
806 —		TO SELECT AN EXISTING WORKLOAD
807 —	(P)	TO SET/RESET THE INDEX ANALYSIS PARAMETERS
808	Đ	TO START INDEX ANALYSIS
809 —	<u> </u>	TO PERFORM "WHAT-IF" ANALYSIS
810—		TO RESTART INDEX ANALYSIS FROM A CHECKPOINT
811	S	TO DISPLAY SUMMARY INFORMATION
812—	<del>%</del>	TO VALIDATE THE INDEXES
813—		TO SCHEDULE THE CREATION OF INDEXES
814	?	TO VIEW THE HELP CONTENTS
815—	₽?	TO GUIDE THE USER HOW TO USE HELP

FIG. 21

Define Workload ?X
┌ DBQL Search Criteria ────────
User Name: Account Name:
Start Time: End Time:
Row Count: I/O Count: Frequency:
Statement Text:
503
- DBQL Statements
Selected Frequency Statement Text
Workload Name: Select All Deselect All
OK Cancel



510 Define Workload ? X - SQL Statements sel \* from dbc.dbcinfotbl; ٥ 512<sup>ノ</sup> 1 Add **Browse** Frequency: 513 -Selected Statements Workload Name: MyWorkload 514 Frequency Statement Text sel \* from dbc.dbcinfotbl; D ٥ Remove Cancel

### FIG. 23

520 Define Workload QCD Statements QCD Name: Query Id: Query Tag: 522 524 **TIWizQCD Browse QCD** Query Frequ Statement Text Selec 19 1 Insert explain into tiwizqcd sel \* from query,rela **V** 17 Insert explain into tiwizqcd sel \* from query;;; 1 sel \* from query, relation where query, queryid : 15 1 13 sel \* from query, relation, workload;;; sel \* from query, relation where relation.relation 32 1 11 sel \* from query, relation where query. query id : 9 1 sel \* from query,relation ,workload where quer 1 sel \* from query;;; 30 Insert explain into TIWizQCD sel \* from relatio v 1 28 ٥ Workload Name: MyWorkload **Deselect All** Select All OK Cancel



Open		X C
Look in: Sql	lps	
டி createdb நி <b>createtb</b> டி dropdb டி migrat11 டி migrat20 டி migrat21	町 migrat31 町 migrat40 町 migrat41	
File <u>N</u> ame:	createtb	Open
Files of type:	SQL Files (*.sql)	Cancel



540 Define Workload Select SQL Statements -542 Frequency Statement Text Selected SELECT DISTINCT 1 t\_2.t\_2\_c\_2- t\_ SELECT NULLIF ( t\_4.t\_4\_c\_3 1 DELETE FROM t\_4 WHERE NO 1 DELETE t\_1 WHERE NULLIF (t\_1 1 INSERT INTO t\_2 ( t\_2.t\_2\_c\_1 , t\_2. 1 1 **UPDATE t\_1 FROM t\_5, t\_2, t\_3 SET** ٥ MyWorkload Workload Name: Select All Deselect All OK Cancel

FIG. 26

550 **Existing Workload** ? X - Workload Statements QCD Name: Workload Name: MyWorkload **TIWizQCD** 552 State Frequ **Statement Text** sel \* from query;; 1 1 2 1 sel \* from relation;; 4 Workload Status Validate Sy Validate Ti Validate Q Recommend Index Tag Recom A 7:43.670000 tiwizqcd 2 deepika myindextag NONE MyIndexT ac 1 deepika 7:43.670000 tiwizqcd NONE myindextag 2 deepika 7:43.670000 tiwizqcd NONE 4 Modify Options -554 Qcd Statements 556 **Query Text** Modify OK Cancel

	Existing Workload	X
	- Morklood Statements	
	QCD Name: Workload Name:	<del></del>
550A	TIWizQCD	
	Selec   State   Frequ   Statement Text	
552A –	izi 1 1 sel * from query;;	
		$\overline{\Box}$
	- Workload Status	
	Recommend Index Tag   Validate Sy   Validate Ti   Validate Q   Recom △	
	myindextag deepika 7:43.670000 tiwizqcd	<u> </u>
	MyIndexTac deepika 7:43.670000 tiwizqcd	
	2 myindextag deepika 7:43.670000 tiwizqcd NONE ▽	<u></u>
	△	
	- Modify Options	T
_		
558	Cod Statements	
	- 1 1	 [7
,	New Workload Name:	!
		1
	OK	

### FIG. 28

560 Index Analysis Parameters ? × -Index Analysis Inputs -✓ <u>Keep existing indexes</u> Maximum Columns per Index: 4 Δ Maximum Indexes per Table: 16  $\overline{\nabla}$ Index Search Space: 256 Change Rate Threshold: 5 Set Defaults OK Cancel

570



# FIG. 29

Index Analysis

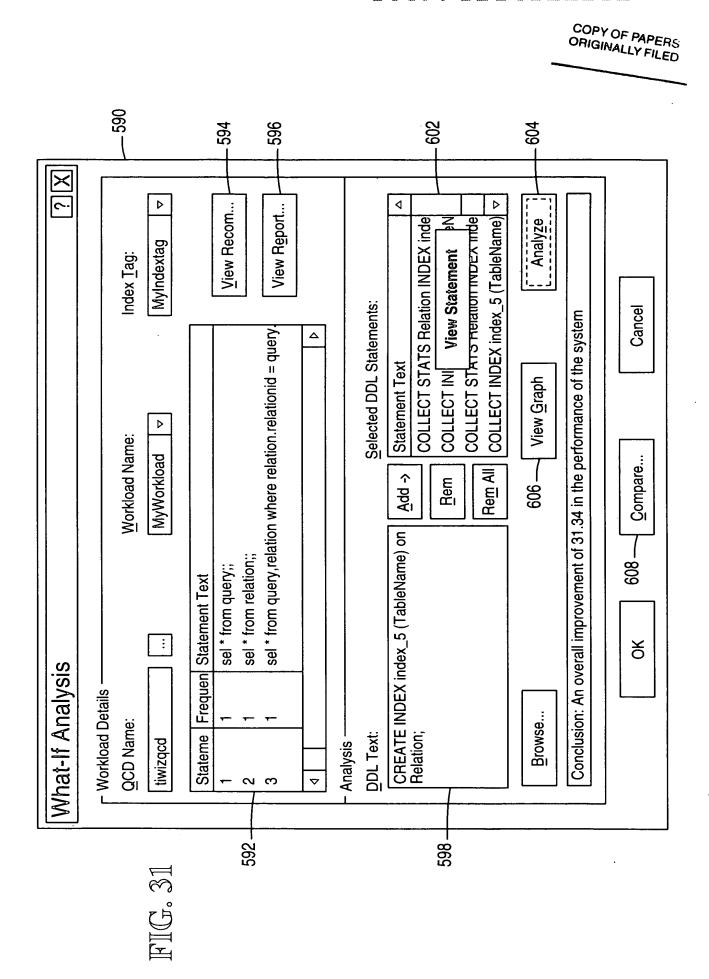
- Workload Statements -

- 572

Statemment I	d Frequency	Statement Te	ext	Δ
3	1 .	sel * from que	ery,relation where relation.re	lationid
1	1	sel * from que		
2	1	sel * from rela		▽
4				D
Calcat Table	•			
Select Table	S			
Selected	Database Na	ame	Table Name	Access
N.	tiwizącd		QUERY	3
	tiwizącd		RELATION	2
4				. D
•	574 J		Select All De	select All
Restart Para	meters ——			
ndex Tag:	MyIndexTag		Checkpoint Frequency:	
Save Option	s ———			
	ecommendatio	ons in Files	Save Exection P	lans in Files
<del></del>				



580	
Restart Index Analysis ?	
Restart parameters	
QCD Name: TIWizQCD	]
Workload Name: MyWorkload	]
Index Tag: MyIndexTag	
Save option	
Save Recommendations	
Save exection plans	
OK Cancel	



	× 🗆 =	3	extag	Stats DDL	COLLECT STATS	COLLECT STATS	COLLECT STATS		<u>A</u>	
		₩.	Index Tag: myindextag	Index DDL	CREATE INDEX	CREATE INDEX	CREATE INDEX			
620		Index Recommendation Report	nyworkload	Time Esti	59.00	59.00	29.00			
		ndex Recomm	Workload Name: myworkload	Size(KB)	10.00	10.00	10.00			
FIG. 32	leport	_		Index T	ISN	ISN	IS O			622
FI	mmendation <b>F</b>		QCD Name: tiwizqcd	Index Tag	MyIndextag	MyIndextag	MyIndextag			
	Modex Recommendation Report  Modes  Mo	·	QC	Table Name	QUERY	RELATION	RELATION		▽	

FIG. 3

×	Гад			
	Index Tag: MyIndexTag	Columns	QueryID RelationKey	
	Existing Indexes Report Workload Name: myworkload	Index Type	<u>.</u>	632
exes Report	QCD Name: TIWizQCD	Index Name	PK_QueryID PK_RelationKey	
W Existing Indexes Report	QCD	Table Name	QUERY RELATION	

[ <del>]</del>							
×			N W			Δ	
	Index Tag: MyIndexTag	Query Text	sel * from query,relation w	sel from relation;;			·
		Percentage Cha	100.00	100.00			
	Query Cost Analysis Report Workload Name: myworkload	Cost(with recommended	50.00	50.00			642
M Query Cost Analysis Report	QCD Name: TIWizQCD	Cost(with existing i	100.00	100.00			
₩ Query Cos	Ō	Query Type	SELECT	SELECT		∇	

Index Tag: Index1 Workload Name: MyWorkload .650 Update Cost Report **Update Cost** 652-QCD Name: MyTextQCD Indexes No rows returned Table Name  $\nabla$ 

Size(KB) Index Tag: MyIndexTag 10.00 10.00 Disk Space Analysis Report 999-Workload Name: myworkload MyIndextag MyIndextag Index Name MyIndextag 662-FIG. 36 QCD Name: TIWizQCD ♦ Disk Space Analysis Report Table Name QUERY RELATION RELATION  $\nabla$ 

X sel \* from query,relation where relation.relationid = query.queryid and query.qu sel \* from query,relation where relation.relationid = query.queryid and query.qu Index Tag: MyIndexTag .670 Workload Name: myworkload Table Usage Report sel \* from relation;; sel \* from query;; Statement Text 672-FIG.37 QCD Name: TIWizQCD Access Count ₩|Table Usage Report Table Name RELATION QUERY RELATION QUERY  $\nabla$ 

	X 🛭 🖹			Statement T	sel * from q	sel * from q	sel * from q	sel * from q			Δ	
			ß	State	* les	sel *	sel *	* ləs				
			Index Tag: MyIndexTag	Columns involve	¢.	QueryID, QUER	2	٥.		i de Asse		
089		Workload Analysis Report	Workload Name: myworkload	Columns	RelationKey, Cardinality, Geogl	QueryText, QUERYNAME, Que	UDB_KEY, QUERYNAME, Dat	Sortinfo, VIEWNAME, UDB_KE				
	THE STATE OF THE S	<b>&gt;</b>		Table Na	RELATION	QUERY	QUERY	RELATION				685
	₩ Workload Analysis Report		QCD Name: TIWizQCD	Relative	3.70	3.70	3.70	3.70				
•	oad An		CD Na	Cost	10	10	10	10				:
	Workle			State	SELE	SELE	SELE	SELE	- 11 Pale land		abla	

ORIGINALLY FILED

COLLECT STATS Query IND Δ COLLECT STATS Relation **COLLECT STATS Relation** Index Tag: MyIndexTag Stats DDL CREATE INDEX index\_4 (name, TableName) o... CREATE INDEX index\_3 (QueryText) on Query; CREATE INDEX index\_4 (name) on Relation; Workload Name: myworkload Summary Report Index DDL 692 QCD Name: TIWizQCD Index Name MyIndextag MyIndextag MyIndextag √ Summary Report Table Name RELATION RELATION QUERY

FIG. 39

9

Q	× 🗎 🖹	myworkload	Statement Text	sel * from query, relation where query.que	sel * from query, relation, workload where	sel * from query,relation,workload;;	sel * from query,relation where query.que	sel * from query,relation,workload where	sel * from query,relation,workload;;	sel * from query, relation, workload where	sel * from query,relation,workload;;			
002		ort Workload Name: myworkload	Geograph	built locally	built locally	built locally	built locally	built locally	built locally	built locally	built locally			
		Table Scan Report tiwizqcd	AMPs Retrieves	All AMP Retrieve	All AMP Retrieve	All AMP Retrieve	All AMP Retrieve	All AMP Retrieve	All AMP Retrieve	Single AMP Retr	All AMP Retrieve			702
FIG. 40		Tat QCD Name: tiwizqcd	Cardinality	45.00	45.00	45.00	282.00	282.00	282.00	2.00	2.00			
IF]	₩ Table Scan Report		Table Name	QUERY	QUERY	QUERY	RELATION	RELATION	RELATION	WORKLOAD	WORKLOAD			
	W Table S		Owner	tiwizqcd	tiwizqcd	tiwizqcd	tiwizqcd	tiwizqcd	tiwizqcd	tiwizqcd	tiwizqcd	, 4 = ····	▽	



-710 Workload Clean Up Workload Statements -QCD Name: Workload Name: **TIWizQCD** MyWorkload  $\nabla$ 712 State | Frequ | Statement Text sel \* from query;; 2 sel \* from relation;; 4 Workload Status -714 Recommend Index Tag Validate Sy Validate Ti Validate Q Selec 7:43.670000 tiwizqcd 2 myindextag deepika 7:43.670000 tiwizqcd MyIndexT ac deepika 2 myindextag deepika 7:43.670000 tiwizqcd Delete Options · Delete Workload ✓ Delete Analysis Delete Plans Delete OK Cancel

FIG. 42

-730

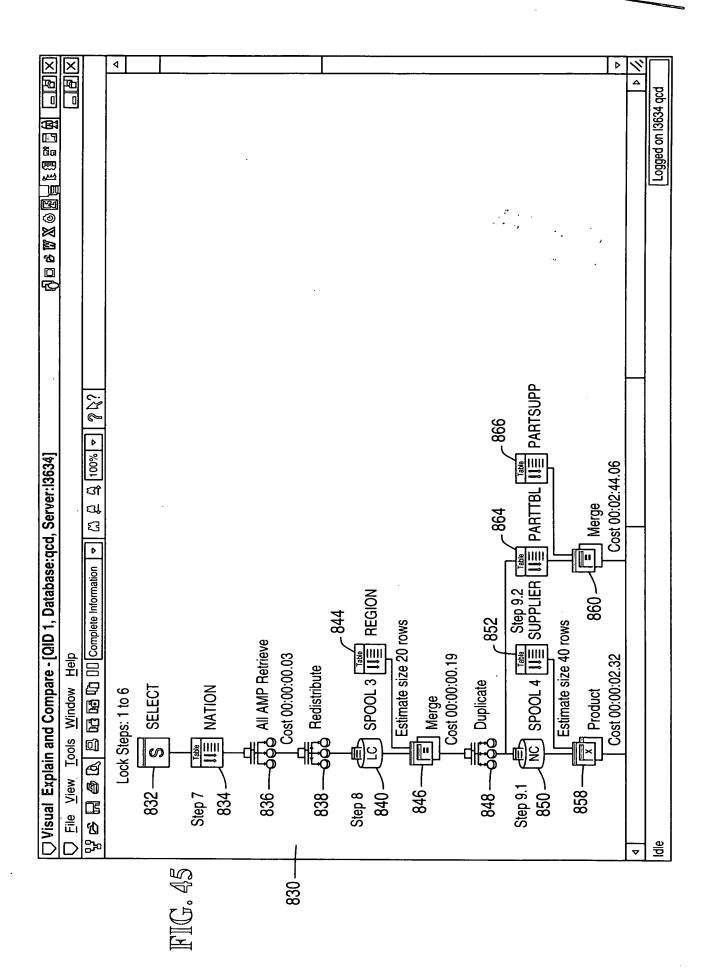
Cancel

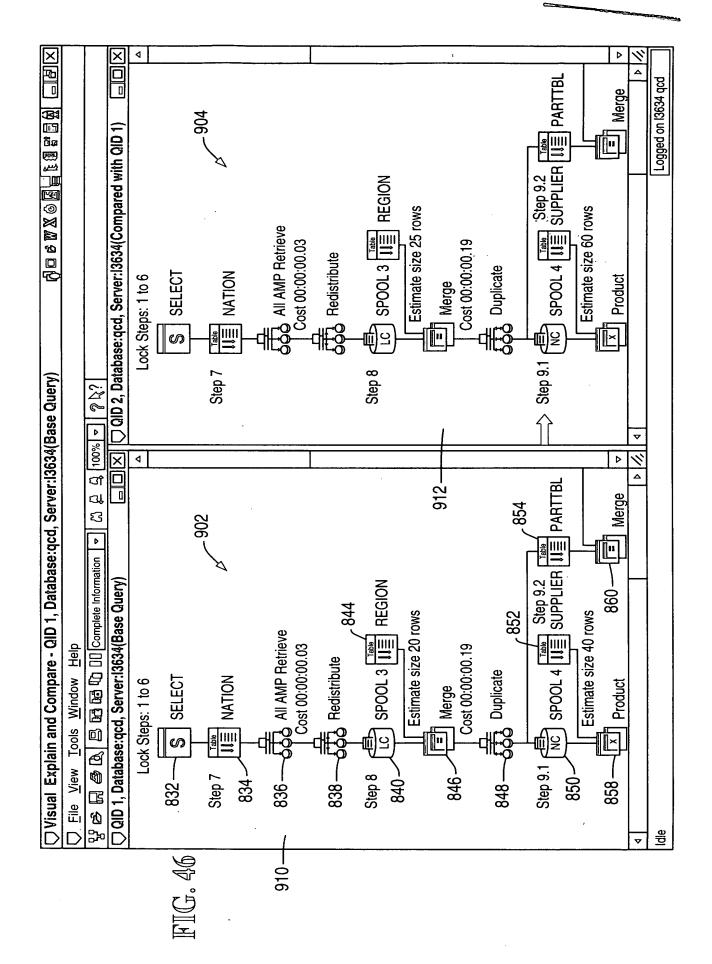
# Load Recommendations ? ☒ ○ Load Recommendations from QCD ○ Load Recommendations from file TIWizQCD,MyWorkload Browse...

T. II (7) 9 - A. A.	<del></del>	
Load Recommend	ations Details	? 🗶
QCD Name:	TIWizQCD	
<u>W</u> orkload Name:	MyWorkload	. 🗸
Index Tag:	myindextag	$\nabla$
742 — OK	Cancel	

### FIG. 44

750 **Index Validation**  Validate Indexes -Select indexes to be validated: ✓ Validate on another system -752 Table Index Index Index DDL Sele Columns QUER MyInd Query Text CREATE INDEX index\_3 (Query T RELA MyInd CREATE INDEX index\_4 (name) o name RELA MyInd CREATE INDEX index\_4 (name T TableName ٥ Deselect All Select All View DDL... Validate 754 J 756 - Validation Results 758 % Sample on which statistics were collected A Table Name Index Name **QUERY** 10 **RELATION** 10 RELATION 10 Conclusion: An overall improvement of 38.24 in the performance of the system Compare Options: Compare on same system  $\nabla$ View Graph -760 OK Compare... Cancel 762





전 Teradata Index Wizard File View Workload Index-Analysis Index-Val	Validation Index-Creation Tools Help
4 日 医 7 日 日 日 日 日	
	Set Statistics Sample Size
	Workload Definition Validation
	1,000 to 10,000 rows: 30 = 10,000 to 100,000 rows: 20 = 10,000 to 100,000 rows:
950 —	100,000 to 1,000,000 rows: 10 ⊜
	1,000,000 to 10,000,000 rows: 5
	10,000,000 to 100,000,000 rows: 1
	Above 100,000,000 rows: 0.1 🚖
	Set Defaults
	OK Cancel Apply
Define the workload or select the what-if analysis or start the index validation	s or start the index validation